

Serial No: 09/847,298

WALSDORFF et al.

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REMARKS

Claims 2, 3, 5, 6, and 12-13 are currently pending in the Application. New claim 13 has been added.

The Examiner rejected claims 2-3, 5-6 and 12 under 35 USC §103(a) as being unpatentable over **Courty et al.** (US 4,381,415) or **Convers et al.** (US 4,460,699) in view of **Petit et al.** (US 5,972,827).

The Examiner alleges that **Courty et al.** discloses a catalyst comprising a delta alumina carrier, and **Convers et al.** discloses an oxychlorination catalyst comprising a gamma, eta, or delta alumina carrier. The Examiner takes the position that **Petit et al.** discloses a powder and that it would have been obvious to one of ordinary skill in the art to use the powder with the processes disclosed in **Courty et al.** and **Convers et al.**

However, the Examiner has not established a prima facie case of obviousness. According to §103, in order to establish a prima facie case of obviousness, there must be (1) some suggestion or motivation to modify the references, (2) reasonable expectation of success and (3) the prior art reference must teach or suggest all of the claim limitations. See MPEP §2143.

In this case, there is no motivation to combine the references. One of ordinary skill in the art would not be motivated to combine **Petit et al.** with either **Courty et al.** or **Convers et al.** or to modify the primary references in light of the secondary. Both **Courty et al.** and **Convers et al.** are directed to fixed bed systems whereas **Petit et al.** is directed to fluidized bed systems. One of ordinary skill having the disclosures directed to fixed bed systems, would not look to a reference disclosing the use of powdered alumina for use in fluidized beds as in **Petit et al.** This is because one skilled in the art would know that alumina in powdered form as disclosed in **Petit et al.** is for use in fluidized bed systems and not fixed bed systems. Furthermore, the use of the powdered alumina of **Petit et al.** would

As discussed in the reply filed July 1, 2005, on page 3, last full paragraph, **Courty et al.** is directed toward a fixed bed system. A copy of page 496 of Ullmann's Encyclopedia of Industrial Chemistry, vol. A13, was enclosed for informational purposes, wherein it indicates that fixed beds are used in the catalytic reforming of hydrocarbons.

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Moreover, **Convers et al.** states that its disclosure is directed toward a fixed bed process. See column 2, lines 10-12. **Convers et al.** also clearly teaches that there is a limited minimum size necessary for operation of a fixed bed system. See column 3, lines 63-64. The minimum range suggested by **Convers et al.** is 1 mm to 10 mm. See **Convers et al.** column 4, line 1. However, the particle range of 20-200  $\mu\text{m}$  disclosed by **Petit et al.** is far below this minimum range suggested by **Convers et al.** See **Petit et al.** column 3, lines 6-16. Therefore, **Convers et al.** in fact teaches away from anything smaller than its suggested range because it would be below the minimum range. See *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); MPEP §2143.01.V (proposed modification cannot render the prior art unsatisfactory for its intended purpose). One of the purposes of prohibiting too small particles, is to prevent a pressure drop problem and prevent "channeling." See column 3, lines 53-57.

In contrast to **Convers et al.** and **Courty et al.**, **Petit et al.** is directed toward fluidized bed systems. See **Petit et al.**, column 2, lines 44-49; column 3, lines 40-52. Thus, one of ordinary skill in the art would not be motivated to use the powder form disclosed in **Petit et al.** with fixed bed systems because one of ordinary skill would understand that the powder form of alumina is to be used in fluidized bed systems. Also, one of ordinary skill would not use the powder form because it may frustrate the intended operation of the fixed bed systems. Therefore there is no motivation to combine the references and no prima facie case of obviousness is established.

The respective advantage of **Petit et al.** is not a result of a change from fixed to fluidized. Rather it overcomes catalyst wear in fluidized bed which is due to "sand." See **Petit et al.** column 1, lines 24-29. This means the problem encountered according to **Petit et al.** is not related to the nature of  $\text{Al}_2\text{O}_3$  which is employed as support. Therefore there is no motivation to do what the applicants have done.

Furthermore, **Petit et al.** does not disclose the use of  $\delta$  alumina, it merely gives a general disclosure of alumina in powdered form. Both **Convers et al.** and **Courty et al.** references merely give a listing of various types of alumina which may be employed in the system, and give no preference or suggest that  $\delta$ -alumina should behave any differently than the other disclosed types. See **Courty et al.**, column 3, lines 55-60; **Convers et al.**, column 4, lines 51-61. Under §103, the currently claimed invention must

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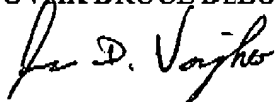
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be examined as a whole. Therefore, one should not look only to the subject matter which is literally recited in the claim, but also the properties. See In re Antonie, 559 F. 2d 618, 195 USPQ 6 (CCPA 1977); MPEP §2141.03.V. In the case at hand, the use of  $\delta$ -alumina produces unexpected results, as seen in the Examples of the present invention. The catalysts according to the present invention, in comparison to  $\gamma$ -alumina, produce significantly better selectivity while at the same time showing comparable activity. See Application, page 3, lines 25-28. Therefore, such results show that the currently claimed invention is not obvious in light of the cited references.

In light of the foregoing, the Applicants respectfully request that the §103 rejections be withdrawn.

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Respectfully submitted,  
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